

WHAT IS CLAIMED IS:

1. A system for determining a tax for a vehicle equipped with a mobile unit, comprising:

5       the mobile unit operable to determine a plurality of vehicle positions along a route traveled by the vehicle;

the communications link coupled to the mobile unit, the communications link operable to receive the vehicle positions from the mobile unit; and

10      a dispatch coupled to the communications link, the dispatch operable to receive the vehicle positions determined by the mobile unit using the communications link, the dispatch further operable to determine the tax for the vehicle in response to the vehicle positions.

15      2. The system of Claim 1, wherein the dispatch is operable to determine a distance traveled by the vehicle within a region, the dispatch further operable to determine a tax for the vehicle in the region in response to the distance traveled by the vehicle within the region.

20      3. The system of Claim 2, wherein the mobile unit comprises an input device operable to allow an operator of the vehicle to input information into the mobile unit indicating when the vehicle has entered a new region.

25      4. The system of Claim 1, wherein the communications link comprises a cellular telephone network.

30      5. The system of Claim 1, wherein the mobile unit comprises a GPS receiver to determine the vehicle position.

35      6. The system of Claim 2, wherein the regions are defined by boundaries between separate taxing entities.

7. The system of Claim 1, wherein the dispatch is operable to determine a tax for each of a plurality of taxing regions along the route traveled by the vehicle.

5 8. The system of Claim 7, wherein the dispatch is further operable to generate a report comprising distance traveled by the vehicle in each taxing region and the corresponding tax determined by the dispatch.

10 9. The system of Claim 1, wherein the mobile unit determines a plurality of vehicle positions at a programmable interval of time.

15 10. The system of Claim 1, wherein the mobile unit comprises:

a positioning receiver operable to determine a plurality of position fixes;

20 a processor coupled to the positioning receiver, the processor operable to generate a plurality of vehicle positions in response to the position fixes determined by the positioning receiver; and

a communications device coupled to the processor and operable to transmit the vehicle positions to the dispatch.

25 11. The system of Claim 1, wherein the mobile unit comprises an odometer operable to measure distance traveled by the vehicle.

12. The system of Claim 1, wherein the dispatch comprises:

a communications device operable to receive the vehicle positions determined by the mobile unit;

5 a memory operable to store geographic information, vehicle positions, and tax information; and

10 a processor coupled to the communications device and the memory, the processor operable to determine a tax for the vehicle in response to the geographic information, the vehicle positions, and the tax information.

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13. An apparatus on a vehicle for determining distance traveled by the vehicle in a plurality of regions, comprising:

5 a positioning device operable to determine a plurality of vehicle positions along a route traveled by the vehicle;

a memory operable to store geographic information defining the regions; and

10 a processor coupled to the positioning device and the memory, the processor operable to receive vehicle positions from the positioning device and geographic information from the memory, the processor further operable to determine the distance traveled by the vehicle in the regions in response to the vehicle positions and the geographic information.

15 14. The apparatus of Claim 13, wherein the positioning device comprises a GPS receiver.

20 15. The apparatus of Claim 13, wherein the positioning device comprises an on-board positioning sensor.

25 16. The apparatus of Claim 13, further comprising an odometer coupled to the processor, the odometer operable to measure distance traveled by the vehicle.

30 17. The apparatus of Claim 16, wherein the processor is operable to receive the measured distance from the odometer, the processor further operable to determine the distance traveled by the vehicle in the regions in response to the measured distance.

18. The apparatus of Claim 13, wherein the processor determines a tax for the vehicle in the regions in response to the vehicle positions and the geographic information.

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19. The apparatus of Claim 18, comprising a transmitter operable to transmit the determined tax to a remote location.

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20. The apparatus of Claim 18, wherein the memory is further operable to store tax information, the tax information associated with the regions defined by the geographic information.

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21. The apparatus of Claim 18, wherein the processor is further operable to generate a report comprising distance traveled by the vehicle in each region and the corresponding tax determined by the processor.

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22. A method for determining a tax for a vehicle traveling through a plurality of taxing regions, comprising:

5 determining a plurality of vehicle positions at the vehicle;

associating each vehicle position with a taxing region; and

10 determining the tax in each taxing region in response to the vehicle positions associated with the taxing region.

23. The method of Claim 22, wherein the step of determining a plurality of vehicle positions, comprises:

15 establishing a plurality of position fixes with a positioning device;

determining a route traveled by the vehicle in response to the position fixes; and

20 dividing the route into a plurality of segments, the endpoint of each segment defining a vehicle position along the route.

24. The method of Claim 22, wherein the step of associating each vehicle position with a taxing region comprises:

25 generating a grid with a plurality of cells, each cell identifying a taxing region;

determining the cell containing the vehicle position; and

30 associating the vehicle position with the taxing region identified by the cell.

25. The method of Claim 23, wherein the step of determining the tax comprises:

5 determining the distance traveled in the taxing region in response to the number of vehicle positions associated with the taxing region; and

determining a tax in the region in response to the distance traveled by the vehicle in the region.

10 26. The method of Claim 23, wherein the step of determining a plurality of vehicle positions comprises receiving input from an operator of the vehicle indicating position of the vehicle.

15 27. The method of Claim 23, wherein more than one vehicle position is determined between two position fixes.

20 28. The method of Claim 23, wherein the step of determining a plurality of position fixes is performed by a GPS receiver on the vehicle.

25 29. The method of Claim 22, wherein the step of determining a plurality of vehicle positions comprises:

establishing a plurality of position fixes;

generating a grid with a plurality of cells, each cell identifying a predetermined vehicle position;

associating each position fix with a single predetermined vehicle position; and

30 determining a route traveled by the vehicle in response to the predetermined vehicle position.

30. The method of Claim 29, wherein the step of determining the tax comprises:

generating a table containing the predetermined vehicle positions and the corresponding distance in each taxing region between predetermined vehicle positions; and

determining the tax in each region in response to the corresponding distance in each taxing region between vehicle positions.

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31. The method of Claim 29, wherein a plurality of cells identify a single predetermined vehicle position.

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32. The method of Claim 29, wherein the step of generating a grid with a plurality of cells comprises the step of associating each predetermined vehicle position with a geographic mark.

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33. The method of Claim 29, wherein the step of establishing a plurality of position fixes is performed by a GPS receiver on the vehicle.

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34. The method of Claim 22, wherein the step of determining the tax comprises:

measuring the distance traveled by the vehicle using an odometer; and

determining a tax in each taxing region in response to the distance traveled by the vehicle in each taxing region.

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35. The method of Claim 22, wherein the step of determining a plurality of vehicle positions comprises the step of establishing a plurality of position fixes with a positioning device.

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36. The method of Claim 35, wherein the step of associating each vehicle position with a taxing region comprises:

- 5 generating a database containing geographical information; and  
associating each position fix with a taxing region in response to the geographical information contained in the database.

10 37. The method of Claim 36, wherein the step of determining the tax comprises:

- measuring the distance traveled by the vehicle using an odometer; and  
determining a tax in each taxing region in response to the distance traveled by the vehicle in each taxing region.

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